

FEBRUARY 22.

The President, Dr. RUSCHENBERGER, in the chair.

Thirty-two members present.

A paper entitled "Descriptions of New Species of Fossils from Paleozoic Rocks of Iowa," by Chas. A. White, M.D., was presented for publication.

*On the Theory of Evolution.*—Prof. COPE gave a history of the progress of the doctrine of evolution of animal and vegetable types. While Darwin has been its prominent advocate within the last few years, it was first presented to the scientific world, in a rational form, by Lamarck of Paris, at the commencement of the present century. Owing to the adverse influence of Cuvier, the doctrine remained dormant for half a century, and Darwin resuscitated it, making important additions at the same time. Thus Lamarck found the variations of species to be the primary evidence of evolution by descent. Darwin enunciated the law of "natural selection" as a result of the struggle for existence, in accordance with which "the fittest" only survive. This law, now generally accepted, is Darwin's principal contribution to the doctrine. It, however, has a secondary position in relation to the *origin* of variation, which Lamarck saw, but did not account for, and which Darwin has to assume in order to have materials from which a "natural selection" can be made.

The relations exhibited by fully grown animals and plants with transitional or embryonic stages of other animals and plants, had attracted the attention of anatomists at the time of Lamarck. Some naturalists deduced from this now universally observed phenomenon, that the lower types of animals were merely repressed conditions of the higher, or in other words, were embryonic stages become permanent. But the resemblances do not usually extend to the entire organism, and the parallels are so incomplete, that this view of the matter was clearly defective, and did not constitute an explanation. Some embryologists, as Lereboullet and Agassiz, asserted that no argument for a doctrine of descent could be drawn from such facts.

The speaker, not adopting either view, made a full investigation into the later embryonic stages, chiefly of the skeleton of the Batrachia, in 1865, and Prof. Hyatt, of Salem, Mass., at the same time made similar studies in the development of the Ammonites and Nautili. The results as bearing on the doctrine of evolution were published in 1869 (in "The Origin of Genera"). It was there pointed out, that the most nearly related forms of animals do